

## CLAIMS

- 1 1. An RMS-to-DC converter system comprising:  
2 a variable gain amplifier having transfer function ripple that receives an input signal and  
3 provides an amplifier output signal;  
4 a detector that receives the amplifier output signal and provides a detector output signal;  
5 an error amplifier that receives the detector output signal and provides an error amplifier  
6 output signal having an AC component; and  
7 a feedback circuit coupled to the error amplifier output signal and to the variable gain  
8 amplifier for providing a feedback signal to the variable gain amplifier that includes an AC  
9 component for reducing transfer function ripple of the RMS-to-DC converter system.
- 1 2. The RMS-to-DC converter system as claimed in claim 1, wherein said detector output  
2 signal includes an AC component.
- 1 3. The RMS-to-DC converter system as claimed in claim 1, wherein said error amplifier  
2 includes a reference input node for receiving a reference signal including a DC component and  
3 an AC component.
- 1 4. The RMS-to-DC converter system as claimed in claim 3, wherein said AC component of  
2 said reference signal includes a low frequency sine wave signal.
- 1 5. The RMS-to-DC converter system as claimed in claim 3, wherein said AC component of  
2 said reference signal includes noise.

1 6. The RMS-to-DC converter system as claimed in claim 1, wherein the error amplifier  
2 output signal is provided to an output node via an RC output circuit.

1 7. The RMS-to-DC converter system as claimed in claim 1, wherein said error amplifier  
2 includes a capacitor that is selected to contribute to permitting the error amplifier output signal to  
3 include an AC component.

1 8. The RMS-to-DC converter system as claimed in claim 1, wherein said detector output  
2 signal is a current signal.

1 9. The RMS-to-DC converter system as claimed in claim 1, wherein said system further  
2 includes a reference voltage signal that is applied to a reference RMS circuit for providing at  
3 least a squaring and averaging function of said reference voltage signal, said reference voltage  
4 signal including an AC component.

1 10. The RMS-to-DC converter system as claimed in claim 9, wherein said AC component of  
2 said reference voltage signal includes a high frequency sinusoidal signal.

1 11. The RMS-to-DC converter system as claimed in claim 9, wherein said AC component of  
2 said reference voltage signal includes white noise.

1 12. An RMS-to-DC converter system comprising:  
2 a variable gain amplifier having transfer function ripple that receives an input signal and  
3 provides an amplifier output signal;  
4 a detector that receives the amplifier output signal and provides a detector output signal;

5 an error amplifier that receives the detector output signal and a reference signal, and  
6 provides an error amplifier output signal having an AC component, said error amplifier including  
7 an amplifier feedback circuit between said error amplifier output and an error amplifier input that  
8 receives the detector output signal;  
9 a feedback circuit coupled to the error amplifier output signal and to the variable gain  
10 amplifier for providing a feedback signal to the variable gain amplifier that includes an AC  
11 component for reducing transfer function ripple of the RMS-to-DC converter system.

1 13. The RMS-to-DC converter system as claimed in claim 12, wherein said amplifier  
2 feedback circuit includes a relatively low capacitance capacitor having a capacitance of less than  
3 about 500 pF.

1 14. The RMS-to-DC converter system as claimed in claim 12, wherein said reference signal  
2 is a reference voltage signal that is applied to the error amplifier for providing at least a squaring  
3 and averaging function of said reference voltage signal.

1 15. The RMS-to-DC converter system as claimed in claim 14, wherein said reference voltage  
2 signal includes an AC high frequency component.

1 16. The RMS-to-DC converter system as claimed in claim 15, wherein said AC component  
2 of said reference voltage signal includes noise.

1 17. A method providing an RMS-to-DC conversion, said method comprising the steps of:  
2 receiving an input signal and providing an amplifier output signal by a variable gain  
3 amplifier having transfer function ripple;

4 receiving the amplifier output signal and providing a detector output signal;  
5 receiving the detector output signal and providing an error amplifier output signal having  
6 an AC component by an error amplifier; and  
7 coupling the error amplifier output signal to the variable gain amplifier for providing a  
8 feedback signal to the variable gain amplifier that includes an AC component for reducing  
9 transfer function ripple of the RMS-to-DC converter system.

1 18. The method as claimed in claim 17, wherein said method further includes the step of  
2 providing a reference signal to the error amplifier.

1 19. The method as claimed in claim 18, wherein said reference signal includes an AC  
2 component.